A New Approach to Learning in Classrooms

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The basic conceptions in this paper are:
- First to conceptualise learning as a change in relation between a person and the world through change in his/her capacity for tool use and interpretation of artefacts.
- Second this relation has to be defined within a context (state, social field, institutional practice tradition, and situated activity).
- Third both context and tool/artefact have to be seen as objectification of human needs and intentions already invested with cognitive and affective content.

**Introduction**

For some time the traditional theory of transmission that the teacher transmits knowledge and the student learns by listening or exact copying has been abandoned as a model for learning. New concepts have come to dominate learning theory such as participation in social communities and competence.

The change in conceptions requires a change in view on children’s learning in school from a view on the child as a recipient in learning to a view on the child as a participant in learning, and also a change in the view of learning as primarily associated with cognitive processes to a view on learning as a tool mediated social activity. The aim of this paper is to contribute to the conceptualization of learning in classrooms from this perspective. Through analyses I will demonstrate that children not only learn through their participation in the social world, but also become involved in a reciprocal process in which their motives and personalities play a part in the interaction with the other persons in the classroom – the teacher and their classmates, and thereby contribution to their own learning conditions. Furthermore, expectations from family and community also influence the child’s learning.

Learning is united with teaching though differently in different phases of development. Learning subject-matter content in school is also connected with the children’s motives. To demonstrate this, I will use an example from my own research where I briefly outline the teaching approach ‘the double move in teaching’ that leads to developmental learning. Developmental learning is used within the Vygotskian framework as learning within the ‘zone of proximal
development’, this implies that children’s appropriate theoretical knowledge (concepts as tools) and motives.

**Tool mediation**

Tool mediation is a central concept in Vygotsky’s and the cultural-historical approach to psychology and education. In the cultural-historical approach to psychology, tools (conceptual and manual) are seen as central in mediating between the person and the world (subject and object) and for development of the person’s competencies. I will outline how this concept can be related to how students appropriate knowledge and skills. The example I will start with are the children’s use of models and their discussion of tool use, which took place in fourth grade (they are 9-10 years old). This example illustrates that the basic principle in the cultural-historical theory tool mediation is after being introduced possible to understand and discuss even for children in elementary school, as can be seen from the following extract from a class protocol in which the children discussed what is special about being human. The extract is from a class sessions of a research project of experimental teaching with the themes the evolution of animals, the origin of humans, and the historical change of society (an integration of the subjects of biology, history geography).

In the 14th session of in 4th grade the teacher starts the class by asking what is the difference between animals and humans, pointing to posters hanging in the classroom with the children’s models.

Susanne: There is more on our model (of humans)

*T: Can you mention some?*

Susanne: Work, money, other humans, factories.

Sanne: There is something I cannot understand, because some say that we also come from animals. So there have to be something also from the animals.

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2) This discussion took place after the class had worked with the theme of the origin of humans and how this differs from animal adaptation to their surroundings. The children had worked in four different groups, and each group had drawn models and prepared a poster with questions for the evolution of animals and the origin of humans.

3) This project is also the frame for the case study that will be presented in the last part of the article.
T: Are there not some differences?
Cecilie: It is easier for us than for the animals. They have to go hunting to find food, we can just go to the super-market.
Morten: We use tools.
T.: This you can also find on your models. He points to the models of human development where they have drawn tools, in contrast to the model of animal development where there is no tools.
Jørgen: But animals also use tools, when we saw a film about apes, they used tools.
Loke: Some birds at the Galapagos Islands use sticks.
T. affirms but asks about the difference in animals and humans tool use.
Jørgen: Animals do not write.
Sanne: All humans use tools but not all animals do, what should be in the model should count for all.
T. Do all humans use tools?
Susanne: Yes even primitive people used tools of stone.
Sanne: We also use clothes.
T: Yes, this is also a kind of tool.
Lise: We use tools all the times, now we use it to sit on.
Jarl: The watch is also a tool

The extract illustrates both the form and the content of children’s learning activity. The content is about the importance of artefacts and tools as characteristic of human ways of living (tool is characterised both through the activities such as work, buying and writing and as artefacts, such as money, factories, tools, cloth, watches, chairs). The form of children’s activity in 4th grade is a theoretical discussion of the difference between human and animals; as a foundation for their discussion they point to models they have constructed of the relations between core concepts of the questions: the evolution of animals and the origin of human.
I introduce this scene from my research project to demonstrate one of the main points in a cultural-historical approach to learning, that learning and teaching are seen as interconnected through the content and procedures of the activities. This interconnection is different for children in different developmental phases, but the connection is always present because the basic assumption is that learning and development takes place through social interaction in institutional practice. To conceptualise learning within the cultural-historical tradition, learning has to be related to tool use, guided by teaching and related to the institutional activities in which the children participate.

To understand how these relations between learning and teaching are created Vygotsky’s concept of the instrumental act and the basic idea of tool mediation will be introduced, followed by an outline of how the instrumental act and tool mediation can be connected to the idea of learning through participation in practice.
The Instrumental act

Vygotsky focused on tool use as the key characteristic of human mental activity and characterised the process that combine persons, tools and world as the instrumental act. Vygotsky’s main interest in this connection was how the instrumental act turned around and became a mental act, and thereby influenced the subject’s learning and development (see Fig. 2). (Vygotsky 1997, p. 67).

Figure 2. The model of the mental act

Vygotsky’s theoretical focus was primarily on humans’ psychological functioning with mental tools (i.e. oral and written language, models, blueprints, number systems). It is the mediation of these mental tools that especially influences humans’ psychological relation to the world. He wrote:

“The inclusion of a tool in the behavioural process ... recreates and reconstructs the whole structure of behaviour just like a technical tool recreates the entire system of labour operations. Mental processes taken as a whole, form a complex structural and functional unity. They are directed toward solution of a problem posed by the object, and the tool dictates their coordination and course. They form a new whole the instrumental act ... The psychological tool changes nothing in the object. It is a means of influencing one’s own mind or behaviour or another’s. It is not a means of influencing the object. Therefore in the instrumental act we see activity towards oneself, and not toward the object.” (p. 87)

I would put more stress than Vygotsky did in this citation on including both mental and material tools in the conceptualisation of the fundamental relation between humans and the world, and on the appropriation of instrumental and
menta l acts. The processes of how humans’ interact and regulate the object/world as well as their own mental processes cannot be separated in understanding human learning. A clear distinction between material or technical tools and mental tools is not possible because all artefacts and tools have a mental as well as an action aspect. The unity of the mental and material in the act is important for understanding humans as cultural beings taking part in cultural practices that they both contribute to and are influenced by.

This point is clearly demonstrated in the American philosopher Marx Wartofsky’s theory that also indicates a cultural-historical approach to epistemology and human development. Like Vygotsky he used the concept of tool as mediating between person and the world but he extended the concept of tool to include all artefacts and extended the understanding of acting to include perception as well. His main point in this connection is that cultural artefacts influence the way human perceive their environment, and thereby how they act and transform the environment. Furthermore Wartofsky describes artefact as “objectification of human needs and intentions already invested with cognitive and affective content” (Wartofsky, 1979, p. 204) and thereby uniting both the material and the mental aspect of tools/artefacts.

Wartofsky’s explication of artefact as the objectification of human needs and intentions is very important for understanding learning not only as a cognitive phenomenon of changing persons’ minds and capacities, but also a change in the objects so that they attain both cognitive and affective content. But this leads to the conception that both object and tool in Vygotsky’s model are artefacts (i.e. cultural phenomena) because we cannot experience the world as objects in itself, our experience is always influenced by cultural artefacts.

A question then is why do some artefacts become objects to acquire, influence, understand or learn to handle and others become tools for a specific person in a given situation? Why are some artefacts objects for learning activity and others function as tools in this activity. First for each person what has become tools has once been objects for the instrumental act. Second what become objects are connected with the idea that Wartofsky points out that artefacts are objectification’s of human needs and intentions, and third that there has to be some social practice that helps the single person to learn which objects can relate to his actual needs and motives. This third point introduces an important
factor in understanding a person’s learning of instrumental and mental acts, and this is institutional traditions and practices that specifies both what are objects of activities and what are means of activities (e.g., in home school, at work etc.). How a person’s needs and intentions can be directed to specific object domains and why some artefacts become objects for learning are connected to institutional practices/activities. Before I enter into this discussion about institutional traditions and practices I want to look into another matter that is how learning has been conceptualised in different theories, and to see where the cultural-historical theory contributes further to understanding conditions for children’s learning (i.e., how the person acquires the ability to act with tools and interpret artefacts, how learning takes place).

**Learning as change in the relation between person and world**

Learning can, if we accept Vygotsky’s method of the instrumental act/mental act, be conceptualised as a change in the single human persons’ possibility for action in relation to his surroundings. How does this change take place?

One important characteristic of human learning is learning through action. Piaget has pointed to imitation and play as the type of action that leads to children’s knowledge appropriation (Piaget, 1962). Wood, Bruner and Ross (1976) also point to action as a key factor, but action that leads to learning has to be inside a social relation where it is possible to **scaffold** the child’s action. In this theory both acting (doing) as well as the social aspect of interaction constitute learning. These action and interaction aspects of learning are important, but in these cognitive theories neither content, nor context as anchored in specific traditions are included.

Social theory has widened the spectrum of learning to include formation of practice competence, knowledge appropriation and personal identity, though this content is still characterised on a very formal level with no direct relation to diversity in content of practice or knowledge. With Berger and Luckmann’s (1966) theory, the content of learning is conceptualised as knowledge of the world and of the child’s position in the world encountered through the child’s everyday activities in the family and in the school. Berger and Luckmann
formulate learning as the child’s socialisation into the society while encountering traditions for social interaction in home and school.

Lave and Wenger’s (1991) and Wenger’s (1998) theory succeeded to combine everyday practical activity with general principles of learning. With Lave and Wenger’s approach social practice and production become central as content and participation become the method to acquire knowledge, skill and identity. But this approach does not give the possibility to differentiate between learning in different types of practice traditions. It is primarily the person’s status and identity in the situated practice that is directly commented upon in this theory. By using the concept of peripheral legitimate learning, learning is restricted to skills and knowledge that relate to change in status, going from peripheral to central legitimate participant. Learning is alone directed at skill and knowledge that qualify the person to become integrated into the social process of being accepted as competent.

In both Berger and Luckmann’s and Lave and Wenger’s approaches, the content of institutional practice has become the object of learning activity. The social theory of Berger and Luckmann and the situated learning theory of Lave and Wenger support the view of learning as change in a person’s relation to his material as well as his social world through acquiring competence with tools/artefacts in situated practice, as well as a change in the person’s identity. These theories have much in common. What is the difference then between these theories and Vygotsky’s theory and the cultural-historical approach? – The difference can be found in the cultural-historical theory’s explicit focus on the acquisition of tool mediation as the key aspect of learning, but this aspect takes place through participation in practice and is based on the social interaction between persons. Vygotsky’s theory explicates tool mediation as the key aspect of learning. This aspect influences and changes humans relations to the world and the human mind. Tool mediation is related to cultural practice and tradition in different types of institutions. This aspect has to be further developed (see next section). Before this the kind of tool mediation that one associates with the Vygotskian approach will be presented.

Speech and communication are tool activities that are central in Vygotsky’s theory to understand how the human psyche is created.
“For Vygotsky speech was an important psychological tool, which was at one time a social and cultural element but also served to mediate social processes in the process of internalisation. Such psychological tools not only functioned externally/socially they mediate or regulate internally the action of mental processes. Vygotsky distanced himself from the suggestion that the social context of development was simply the objective environment” (Daniels 1993, 53)

With internalisation, Vygotsky did not mean copying but transforming the external interaction to a new form of internal interaction that guides the child’s actions. Luria (1961) in his experimental work showed how interactions were acquired by the child and gradually came to function as the child’s regulation of his own activity. Luria conducted a series of simple experiments with 3-5 year old children. The children’s task in this experiment was to learn to press a bulb at a specific stimuli and retain from pressing the bulb when other stimuli were presented. The experiments showed that young children can learn to control and inhibit their own spontaneous responses but also that there responses could be regulated by the child him/herself much earlier when a meaningful explanations and word-labels were introduced together with the stimulus. In one experiment the stimuli figures they should learn to differentiate had the outline like small aeroplanes with different colours. When this was explained to the children and the children were told only to press for the a certain colour of the aeroplane this was learned by younger children than when no words were used. But the most important aspect was that the response could be inhibited after being learned, when the children were asked to distinguish the card with the figures by looking at the background. This could be done when this task was accompanied with the explanation that the children should look if the weather was sunny or rainy, because the plain could only fly in sunny weather. Also the youngest children become able to inhibit their spontaneous reaction to let the aeroplane fly and become able to control when the aeroplane has to leave the ground or not. The adult had here the task in the first part of the experiment to give the weather forecast as either sunny or clouded and to control the reaction, but gradually the children could themselves take over this regulation of their own responses. The children acquired a procedure to discriminate between the figures.

Internalisation does not directly mirror the external social relations but is a transformed reflection. Internalisation starts on the intersubjective plane where the child interactions with other persons (in the idealised case between a child
and an adult). On the subjective plane, the child still takes part in a kind of interaction but this time the child take all the roles in the interaction (i.e., the regulating as well as the action role).

What characterises human learning, if we follow the ideas of Vygotsky and Luria is that the person’s relation to the world changes because his or her possibilities for mental interaction changes. Some kind of artefact and procedures with that artefact (in Vygotsky’s case, external speech that become egocentric speech) change from being intersubjectively available to being personally appropriated.

It is important to stress that speech and communication as tool and procedures are not the same tool and procedure for small children as for young people and adults. Vygotsky (1987) point out that language as an instrument changes from labelling, to meaningful description, to metaphor.

Humans learn both procedures to use as well as to produce tools, but they also learn social procedures for interaction that are related to traditions for tool use and interpretation of artefacts that characterise tradition in different social communities and institutions.

But social relations and artefact/tool are necessary but not sufficient to conceptualise learning; the concept of context is also needed. If we turn to Vygotsky again we find that instrumental and mental acts both imply activity as a historical process as well as concrete practice activity. The historical aspect of activity is found in the concept of artefact/tools where the artefact is the result of other humans’ production and their traditions for their use. Furthermore the process whereby an artefact/tool comes to play a role in a person’s life requires that other persons demonstrate, identify and pass on the procedures for using artefacts/tools and the context where they are suitable. An artefact/tool belongs to a tradition of practice. This tradition has to be actualised in situated practice where it can be passed on and appropriated by the younger generation. This creates a relation between the general concept and procedure as tradition and the situated action where the concept is realised in interaction with other persons. One of the central points in the cultural-historical approach is that methods and content define each other and always take place through social interaction (Davydov, 1982; Hedegaard, 2001).
Vygotsky’s model of the instrumental and the mental act can be interpreted as a ‘germ-cell’ for cultural practice with tools/artefacts taking place between person (subject) and world (object).

![Diagram of Vygotsky's model](image)

Figure 3: Extension of Vygotsky’s model of the instrumental act to include procedures with artefact as mediating between the person and the social and material world

From the perspective of the model of how artefact/tools mediates between the person and the world, it is possible to see learning as a change in a person’s relation to his material as well as social world using artefact. The change in these relations are accomplished by the persons appropriation of procedures with tools - mental as well as material that also develop his motives and emotional relations to the world.

**Context**

When traditions and practices are seen as important for understanding differences in tool use, this moves the analysis of learning into a context where traditions and practices have to be conceptualised as part of the conditions for learning. Learning in school takes place within a specific learning tradition, learning in home is related to another kind of tradition.

The tools/artefact and their traditions for use exist before the single person enters the world and become appropriated for the single person through social interaction. The existence of a surrounding with tools/artefacts can be seen as both context and conditions for the person’s development of relationship to the world.
In this paper one of the discussions is about how to conceptualise contexts and especially school as a context for learning. Children’s learning in school is both created and imbued with meaning that is anchored in school traditions.

McDermott (1993) demonstrates this clearly in his research on how a child’s learning disability is constructed differently in different institutional contexts. McDermott argues that the competence and reading skill a child is demonstrating, or the lack of competence diagnosed as learning disability, is dependent on the context the child is entering. Adam, as the child is named in McDermott’s observation study, changes and improves from being in a test situation, to being in the class situation and finally in an after school club situation. McDermott’s example with Adam’s reading problem can exemplify the necessity of seeing skills as integrated with context. In Adam’s case, the learning problem manifests itself differently in different institutional context. This case points to the importance of recognising learning as taking place in different institutions with different traditions for practice. It is in the realising of these institutional practices the child learns. McDermott characterise the institutional activity and the child’s activity as weaved together within the context so it is neither the child in itself nor the context which creates learning or learning problems but the interaction between the child and the practice traditions realised in the situated practice of a given institution with specific children.

The cultural traditions for practice can be differentiated through content and form as an integrated whole. Practice traditions with artefacts that are connected to different spheres of life/institutions are therefore the learning content and not the artefacts in themselves.

Learning takes place in context and the skill and knowledge a person have is always created in interaction with the specific context in which it is realised in different institutions. Institutions can be differentiated in accordance with the dominant practice traditions in a society. The dominant institutions for learning are home, school and workplaces. Extending Vygotsky’s model of the instrumental act into traditions for practice (see Fig. 4).
Figure 4. Vygotsky’s model of the instrumental act is transformed into traditions for practice.

The view on learning as appropriation of institutional practice and contributing to change and creation of new practices/activities in institution has to be seen from a societal aspect to understand the relations between institutions. Learning is connected to practice traditions and the practice traditions in families and in other institutions are the foundation for situated practice. State/society exists through its institutions and the relation they have to each other. But the state become is an imagined entity as discussed in Anderson’s theory of imagined nations (1991)⁴.

⁴) (See also Billig, 1998).
Learning can be viewed from the perspective of the state. The relation between state and the school can be discussed as curriculum and regulated by school laws. The cultural practices of school are at the institutional level and practice both influence the persons learning and development as well as tradition at the societal level.\(^5\)

**Learning in different institutions**

Tool mediation can be seen as activities with artefacts where the tools also have to be understood as intellectual tools in the form of knowledge and skills.

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5) Experiments in the public schools as well as in private school have influenced the school discussion (e.g., in Denmark) and has led to several changes in the school system such as examination-free classes until the eight grade and same teacher through all grades in elementary school. These kinds of influence from institutional practice on school change in general is not unique for Denmark, but can be found in several countries, if we look at curriculum change.
Everyday activities with artefacts are quite different in home, day-care, school, higher education/professional education and work. Therefore it is important to differentiate between learning in these different institutions. Both the kind of knowledge and the methods of learning differ between home, school and at work.

**Everyday knowledge, subject matter knowledge/science knowledge and professional knowledge**

To be able to nuance how learning takes place for children going to school, I will distinguish between everyday knowledge that children carry with them from home/community and scientific knowledge /subject matter knowledge that children meet in school. Everyday knowledge is connected to practical activities at home. Examples are cooking, cleaning and cosy activities. In everyday knowledge procedures and content have melted together, and can be characterised as “silent” knowledge. In school, knowledge is based on teaching traditions with subject matter knowledge and procedures (i.e. language learning with reading and writing procedures, mathematical learning with the four basic operations for calculating, geography with map reading, and history with time line). It is important to point to the differences between subject matter knowledge and scientific knowledge. Subject matter knowledge is connected to their respective scientific domains but the difference is not only in complexity but also that in science the methods and content are integrated and define each other in a reflected way. In subject-matter teaching in school, methods are seldom taught as integrated with the content of the subject matter though this should be the ideal.6 The knowledge connected to craftsmanship and professional work dominates work places and are related to quite different knowledge domains than science and subject matters. Here content and procedures have developed through work traditions, but for the professional persons, the knowledge has become embodied in procedures and methods, similar to everyday knowledge, but with the difference that it can become conscious and reflected upon. The different ways of practice that one can find in home, school, higher, education and the workplace create different conditions for children’s concept formation and thinking.

Scribner (1984), for example, has shown that mathematics is learned and used in different ways in school and at the workplace. She studied American milkmen’s

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6) So that the difference between knowledge areas could be seen from a methodological aspect as well.
delivering practices and found that their way of keeping account of how much milk they had delivered and the payment they received were done in a quite different way than what one should expect from the basic arithmetical operations learned in school. Her research showed that mathematical knowledge and skills are not abstract entities but combine with the institutional practice where it is done.

In school, the goal should be that subject matter knowledge and skills that are acquired should become the person’s own tools for the practice that they will participate in, in the future (i.e., in their everyday practice in other institutions, home and work place) because school is an institution that prepares the child for life in other institutions, higher education, work, marriage etc. The implication of the differences between knowledge at home, school and work can be related to Vygotsky’s advice (1982) about teaching in the different institutions: teaching in home should follow the child’s logic, in the school it should follow the subject matter logic, and at work it should follow the logic of the professional activity and of the work task.7

The knowledge a child acquires at home and in day-care institutions is still relevant in school, but subject matter teaching comes to dominate school teaching and the child’s life activity. The same change can be found when apprenticeship learning and preparation for professional life takes place. Then the knowledge of the professional activity becomes dominant in relation to subject matter knowledge and skill. This is what we find in educational courses that are connected to apprenticeship education where subject matter can be integrated but subordinated to teaching professional skill (e.g., methods of carpeting). Apprentices have to be able to read and calculate and have knowledge in several subject matters to take a professional education, but the profession dominates

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7) There is no agreement in general in school politics about this and the fight is between dominant positions in the cultural fields that recommend different educational methods. What children meet in school is not that teaching should follow the logic of the material and prepare the child for life in other institutions, but a mixture of conflicting demands connected to the positions from both parents, teachers, school leaders, politicians, researchers that have a general connection to the school as well as the specific parents teachers in a specific school so the child enter the activities of school meet these built-in conflicts through the educational practice. An example from the Danish school is the discussion in general about when and how the child should learn to read. The practice differs from one kindergarten class to another about this matter. Many parents expect this when the child enters kindergarten class at 5 or 6 years in Denmark, but the dominating political/pedagogical tradition recommends that the child wait until first grade. So position in the cultural field influence the activities in the traditions for practice in school.
the subjects that are integrated in the apprenticeship schools and not the logic of the subject matter area.

**Learning and development**
The contexts in which children learn are not static entities. All that participates in the social practice of an institution contribute to this practice and leaves his or hers mark on the activities. A family, a day-care institution and a school will be marked by the children who are in the activities as well as the children will be marked by the activities in these institutions. By being in the daily activities in an institution the children appropriate as well as contribute to the way of being together and the social-historical experiences that are accumulated in these practices, emotionally, motivationally as well as cognitively.

Each child appropriate knowledge and skill to master the demands that they meet which are always a result of the child’s engaged activity in shared practice with other people (e.g., the appropriation of day and night rhythm, reading and writing competencies). But the different activities that characterise the different institutions that children participate in, in different periods of their life, leads to qualitative different periods in their development. Elkonin (1971) has presented this in a theory of developmental periods where the different periods in children’s development parallel the different institutions that dominate the child’s life. The first period is dependent on practice in home and daycare, and deals with the child's development and direct emotional contact with other human beings. The second period is related to practice in school and deals with the child's development of roles in relation to other human beings. The third period is related to peer group activity and professional education as preparation for work, it deals with the close personal relationship and work relationships.

The development of motives for these three periods is always ahead of the development of cognition in each of the periods. In the early childhood period (the infant and toddler period), children's development of motives is related to their emotional contact with central persons in their everyday life. This results in development and mastery of the immediate and close everyday world. This mastery is the foundation for the next period, the middle childhood period, which is the kindergarten and early school age. The children’s emotional and motivational world broadens and they develop motives for mastery of the adult world in this period. The learning motive develops and becomes dominating in
this middle childhood period. Here, the children’s knowledge is characterized by acquisition of methods and competence that in school is seen as central for entering the adult world. In the third period, the late childhood period, the secondary school age and youth period, the child’s motive development is directed towards engagement in other persons and society. The dominating motive is togetherness with school fellows, to be socially accepted and at the same time an orientation towards self worth. The child's/youth's cognitive development can be characterized by mastering of methods for reflection about personal relations, work and society relations.

**Learning in School**

In the school period the child’s learning is directed towards mastering the skills that characterise the adult world. The imaginative motive of play activity is replaced by a real wish for acquiring skill. Most children who start in school expect to become able to read and write, if they do not already do this when they start. They do not want to play that they are ‘reading’ they want to acquire the competence. The dominating motive becomes the learning motive. In this period the child’s spontaneous concepts become extended through appropriating subject matter concepts. But it is first when these subject matter concepts become integrated with the child’s everyday concepts from home and community life that their everyday concepts raise to a new level in which a real cognitive development takes place.

The change of view of seeing the child as a recipient in learning to the child as a participant in learning, and of seeing learning as associated with cognitive processes to learning as a social activity should new forms of understanding school children’s learning activity and teaching practice. It is this change in view on children’s learning and development that I have tried to develop within the context of school. Through my analyses I have attempted to demonstrate that school children not only learn through their participation in the social world, but also become involved in a reciprocal process in which their motives and personalities play a part in the interaction with the other persons in the classroom – the teacher and their classmates.
Learning is united with teaching though differently in different phases of development. Learning subject matter content in school is also connected with the children’s motives. To demonstrate this, I will use an example from my own research from the previously mentioned project. I will briefly outline the teaching approach, ‘the double move in teaching’, and sketch two children’s learning activity in the last year they participated in this approach (They experiment only took place three hours a week, the rest of the time were traditional teaching). The learning activity focuses on the children’s acquisition of theoretical knowledge (concepts relations and models as tools for concrete explorations) and development of motives.

The individuality of the children became apparent in their social interaction with others, which was marked by the motives, interests and intentions each possessed for entering into relationships at various levels with the teacher and the other children in the class. In the concluding analyses I have included these aspects, as well as the analyses of concepts and thinking procedures, in order to support a theory of learning and teaching that provides the possibility of describing each child as an individual and as an active contributor to the development of the social interplay of which each child is an integral part.

*With this case of two children’s learning activity I want to show that it is both the activity in the classroom engagement of the children as well as the general expectation from agents in the cultural field that contribute to children’s learning and development.*

**Two students learning activity**

Two students, Morten and Cecilie have been participating in the teaching experiment integrating biology, geography and history into the following three themes: the evolution of animals, the origin of man, and the historical change of societies. The material presented here are from the children’s participating in fifth grade's history teaching.

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9) History teaching in fifth grade included 36 three-hour teaching sessions.
The theme of the teaching experiment in fifth grade was ‘the historical change of societies’. The questions which started the activities in the first sessions were: "How can it be that people live differently in different places of the world?", and "How can it be that people have lived differently in different historical periods?" The problems and topics the children worked with throughout fifth grade can be seen in Appendix.

*The activity in the classroom*

In the teaching experiment the traditional methods of teaching were changed qualitatively from memorizing of historical matters to exploration of problems and cooperation between children. A general method of research as well as specific historical methods thereby became accentuated. The subject matter teaching was changed from methods that characterized empirical knowledge to methods characterizing theoretical knowledge (Davydov, 1982) together with methods characterizing narrative knowledge (Bruner, 1986).

The main characteristics of developmental teaching in the experimental teaching in history were:

1. Communication and cooperation between the children guided by the teacher,
2. Use of procedure models inspired by social science research methods,
3. Use of conceptual models as tools for analyzing historical matters and periods

*Knowledge and subject-matter methods become personal concepts and strategies of thinking*

The central conceptions in the teaching experiment were: Through thinking/reflection a person connects concrete events/situations, from past and present with conceptual categories. The connection between the conceptual categories and the concrete matters is created through the thinking/reflection strategies that persons use in everyday life situations. By building conceptual models, one can create wholeness and perspective between the elements of a subject area. We worked with these aspects in the experimental teaching through creating an entity so that the central concepts of the teaching was realized as core models for the subject of evolution and later the history subject. The task for the children then became to relate the different matters they work with in the class activities to such models (see Fig. 1). The children gradually became able to use core models to analyze specific matters (e.g., to understand the connection species and nature, and for humans between tool use and ways of living and later between
division of work and structure of society). The question is then how these activities created motives for the children.

The contrast and similarity of Cecilie and Morten’s motives in fifth grade

In this presentation, the case description will focus on how the children’s motive changed through 5th grade, a change that could not only be seen as a result of the class activities. Morten’s social orientation in conflict situations, at the beginning of the school year, was to demonstrate his ability in the subject matter tasks. In the last month of the school year his social orientation in conflict situations was to keep working together (cooperating) with his fellow classmates and keep his interest focused on the research activity.

In the beginning of fifth grade, Morten was interested in both the class activities and his classmates. But he did not like that his group partners imitated him when he drew models (in most of the activities the children work in a permanent group of four or five), or when his best friend wanted to look in the books he was reading. He was interested in the different tasks the teacher brought into the class activities, especially drawing models of the historical periods, but he also had a motive for becoming recognized for his work. In the beginning he went by himself when he was criticized, and the teacher or his friend had to help him back to the activity he was doing in his group. A change came after he functioned in the teacher's role twice. In the last period in fifth grade, his social orientation changed through the planning and performance of a ‘play’. In this activity he took the critique from his group fellows straight away and solved the conflicts by confronting the matters he did not agree with and asked the ones who proposed these matters to explain more clearly what they had in mind. He was active in formulating the content and instructing his group. Through this activity he arrogated the leader role and functioned as the leader in his group.

In fourth grade Cecilie had been very concerned about her class mates and the teacher, but in fifth grade the helpful girl became at some point both rebellious and critical in her relation to her classmates and especially in relation to the teacher. She was still primarily the initiator of the activity in her group, like the previous year, but she never presented herself as a leader of the activities, instead she was very caring. Perhaps her rebelliousness came from the conflict that she wanted to guide and become the leader but did not arrogate this role enough. Her motives in fifth grade were characterized by a constant subject matter interest,
but at the same time it became more oriented towards independence and self-determination.

It is like the content of Morten's and Cecilie's social motive of togetherness developed in opposite directions. Through out the year, in fifth grade, Morten developed some security in the social interaction and togetherness with his class mates that he did not have at the beginning of fifth grade. He came to function independently and self-determined. On the contrary Cecilie started out with the care-taking role and gradually rebelled against this role instead wishing to be recognized as a competent and independent person; she wanted to guide and decide in her group but she had troubles combining this with the care-taking role that she had brought with her from fourth grade. This brought her into conflicts and rebellious situations in the last part of fifth grade where the self-determination of the activities increased for all children in the class.

To understand the difference in the children’s development we have to see further than the activity in the class and also integrate the context understood as the tradition in which learning and teaching takes place. In this case the expectation from teacher and parents to how the two children should act primarily as different expectations to girls and boys.

References


Appendix

Fig. 5 Activities in fifth grade history teaching

PROBLEM FORMULATION - MODEL EXTENSION
Formulating goals for this year’s activities through:
Resume of class dialogue of the problems investigated and children drawing models from last year’s history sessions.

Picture analyses and sorting pictures depicting different cultural societies of today and of different historical periods in Denmark.

The models are expanded by the formulation of the concept of society, division of work, beliefs and laws

Dramatic play about division of work in four historical periods

Model drawing

THE GENERAL RESEARCH MODEL
Creation of posters of what we are investigating, what we know and what we do not know

MODEL USE
Comparison and evaluation of a museum-produced task with the pupils’ own produced tasks of the Viking Age

Analyses of the effects of change in societal living from a novel of division of work and of rules in a Viking Settlement
HISTORICAL METHODS
Interpretation of archaeological discoveries of a Middle Age ship from a movie presentation

MODEL EXTENSION
The children write an essay about the structure of society in the Middle Ages from texts about four institutions in the Middle Ages

A book project.

Communication to other children in New York about their models

Through these activities the concepts of society is related to division of work and the concept of ways of living is related to need for work results

USE OF THE MODEL FOR COMMUNICATION
Writing letters to children in New York about the characteristics of the Danish society
MODEL EVALUATION - MODEL EXTENSION
Analyses of movies about discovery of the New World Extension of the concepts:

1. Beliefs with power
2. Tools with academic knowledge
3. Division of work with classes

PLANNING FROM THE CONCEPTUAL RELATIONS OF THE MODEL
Planning and creating dramatic plays with focus on the concept of power and class

Creation of own tasks for analysing a craft industry museum exhibition

MODEL USE AND ANALYSES OF DIFFERENCES IN SOCIETIES
Computer play with Island Survivors - guided by tasks to explore the contrasts between a society and a desert island.

Analyses of the concepts demonstrated in the four different plays constructed and performed in the class. The plays were videotaped and replayed for the analyses.

Final task: an essay about the Danish society of today and the future.